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THE NEW ENGLAND BOTANICAL CLUB

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BOTANICAL ACTIVITIES OF PERCIVAL LOWELL.

C. S. Sargent.

That Percival Lowell took an active interest in trees was probably not known to many persons, for he published only one botanical paper and he had no botanical associates except in this Arboretum. It is not surprising that a man with his active and inquiring mind brought up in New England should, when he found himself in Arizona, want to know something of the strange plants which grew everywhere about him and which were so entirely unlike the plants which he had known as a boy in Massachusetts, and later in Japan and Korea. The love of plants, too, was in his blood and only needed the opportunity of this new field to make itself felt.

Percival Lowell's great great grandfather, John Lowell, was one of the original members of the Massachusetts Society for Promoting Agriculture and its second President, serving from 1796 until his death in 1802. He is less well known for his connection with rural affairs than his son John Lowell, spoken of generally in his day as "the Norfolk farmer," and a generous and successful promotor of scientific agriculture and horticulture in Massachusetts, whom Daniel Webster called "the uniform friend of all sorts of rural economy." The second John Lowell became a member of the Agricultural Society in 1816 and served from the time of his election until 1830 as its Corresponding Secretary, and as one of the editors of its publication, *The Massachusetts Agricultural Repository and Journal*. During these years articles by him on agriculture, horticulture and forestry are found in almost every number. In volume v. published in 1819 there is an important paper by John Lowell on "The Gradual Diminu-

tion of the Forests of Massachusetts, and the importance of early attention to some effectual remedy, with extracts from the work of M. Michaux on the Forest Trees of North America." Volume vii. contains articles from his pen on "Some slight notice of the Larch tree (*Pinus Larix*), known in various parts of the country under the several names of Juniper, Hackmatack, and Larch"; on "Fruit Trees," signed by the Norfolk Gardener, and on "Raising the Oak from the Acorn and the best way of doing it." The last volume of this publication which appeared in 1832, when he was seventy-one years old, contains an article by John Lowell on "The Extraordinary Destruction of the last Year's Wood in Forest Trees and the probable Causes of it;" and on "Live Hedges for New England." The second John Lowell was active in establishing and maintaining the Botanic Garden of Harvard College and was one of the original members of the Massachusetts Horticultural Society. To the first annual festival of the Horticultural Society held in the Exchange Coffee House on State Street, September 19, 1829, he sent from his greenhouses in Roxbury Orange-trees covered with flowers and fruit and a bunch of grapes weighing three pounds.

John Amory Lowell, the son of the second John Lowell and the grandfather of Percival Lowell, was deeply interested in botany and in 1845, thirty years after his graduation from Harvard College, began the collection of an herbarium and botanical library with the purpose of devoting himself seriously to the study of plants. He had made valuable collections and a large botanical library when the financial troubles of 1857 forced him to abandon botany and devote himself again to business affairs. His most valuable books were given by him to his friend Asa Gray and now form an important part of the Library of the Gray Herbarium. His herbarium and his other botanical books were given to the Boston Society of Natural History. John Amory Lowell, like his father and grandfather, was a member of the Massachusetts Society for Promoting Agriculture. He was succeeded by his son John Lowell, who in turn was succeeded by his son, another John Lowell, who of the fifth generation in direct descent from its second President is now a Trustee of this Society.

Percival Lowell's love of plants certainly came to him naturally. I first met him in the Arboretum many years ago examining the collection of Asiatic Viburnums in which he was interested at that time, but it was not until 1910 that he began to send specimens to the

Arboretum, including that of an Oak which he had found growing near his observatory and which so far as it is possible to judge is an undescribed species. Interest in this Oak led him to look for other individuals and to extend his botanical explorations. During these he visited Oak Creek Canyon, a deep cut with precipitous sides in the Colorado plateau which heads about twenty miles south of Flagstaff and carries in its bottom a small stream which finally finds its way into the Verde northwest and not far from Camp Verde. Lowell appears to have been the first botanist who visited the upper part, at least, of this Canyon where he found a number of interesting plants, notably *Platanus Wrightii* and *Quercus arizonica*, which before his explorations were not known to extend into the United States from Mexico beyond the canyons of the mountain ranges of southern Arizona and New Mexico. In Oak Creek Canyon Lowell found a new Ash-tree somewhat intermediate between *Fraxinus quadrangulata* of the east and *F. anomala* of our southwestern deserts which will bear his name. Later Lowell explored Sycamore Canyon which is west of Oak Creek Canyon and larger and deeper than Oak Creek Canyon and, like it cuts through the Colorado plateau and finally reaches the Verde near the mouth of Oak Creek.

Juniperus in several species abounds on the Colorado plateau, and Lowell became deeply interested in these trees and was preparing to write a monograph of our southwestern species. His observations on the characters and altitudinal range of the different species, illustrated by abundant material, have been of great service to me.

Lowell's only botanical paper, published in the May and June issues of the *Bulletin of the American Geographic Society* in 1909, is entitled "The Plateau of the San Francisco Peaks in its Effect on Tree Life." In this paper, which is illustrated by photographs made by the author of all the important trees of the region, he discusses the altitudinal distribution of these trees, dividing his region into five zones which he illustrates by a number of charts showing the distribution of vegetation in each. It contains, too, an important and interesting discussion of the influence on temperature and therefore on tree growth of the larger body of earth in a plateau as compared with a mountain peak where, on account of greater exposure, the earth cools more rapidly.

A bundle of cuttings of what is probably a new species of Willow, to obtain which Lowell had made a long and hard journey, with his

last letter and a photograph of the Willow, came only a few days before the telegram announcing his death. Botany therefore occupied his thoughts during his last days on earth.

The death of Percival Lowell is a severe loss to the Arboretum. He understood its purpose and sympathized with its efforts to increase knowledge. Few collectors of plants have shown greater enthusiasm or more imagination, and living as he did in what he has himself described as "one of the most interesting regions of the globe" there is every reason to believe that as a botanist Percival Lowell would have become famous.

ARNOLD ARBORETUM.

THE GENUS ERECHTITES IN TEMPERATE NORTH AMERICA.

M. L. FERNALD.

WHILE botanizing in October last along the sandy strand on the south side of Cape Cod, Messrs. F. K. Butters, Harold St. John, and the writer found a characteristic Erechtites which seemed unusual on account of its very fleshy foliage and the very broadly ovoid and abruptly acuminate heads. A few specimens were collected for further examination, at Hyannis on October 7, at Yarmouth on October 8; and after returning to Cambridge the writer was surprised to find that in its very long inflated achenes and in some other characters the strand plant was quite unlike *E. hieracifolia*. Consequently, with Professor Butters he returned to the Cape and on October 14th made a further examination and collection of the strand plant, which in all its characters maintains the distinctions noted in the original collections. The plant seems to be a very well marked species which is here proposed as

ERECHTITES **megalocarpa**, n. sp., ab *E. hieracifolia* differt foliis subcarnosis; capitulis ovoideis abrupte acuminatis; involucro 1.5–2 cm. alto, bracteis lanceolatis subobtusis ad basim dilatatam 1–3 mm. latis; corolla floris perfectae brunneo-lineata, lobis brunneo-marginatis nervatisque, tubo viride; acheniis 4–5.5 mm. longis brunneis vel

olivaceis glabris vel paulo strigosis 16–20 costatis, plus minusve inflatis ad apicem versus annulo albido munitis ex quo basis styli persistens protrudit; receptaculo denudato 1–1.2 cm. diametro.

Differing from *E. hieracifolia* in its somewhat fleshy leaves: heads ovoid, abruptly acuminate: involucre 1.5–2 cm. high; its bracts lanceolate, obtusish, 1–3 mm. broad at the dilated base: corolla of the perfect flower with brown lines; the lobes with brown margin and midnerve; the tube green: achenes 4–5.5 mm. long, brown or olive, glabrous or a little strigose, 16–20-ribbed, more or less inflated, toward the apex bearing a white annulus (formed by the bases of the pappus-bristles) from which protrudes the persistent style-base: denuded receptacle 1–1.2 cm. in diameter.— MASSACHUSETTS: upper border of sandy sea-beach, Hyannis, Barnstable, October 7, 1916, *Fernald, Butters & St. John*, no. 15,467; upper and middle regions of sandy sea-beach, West Yarmouth, Yarmouth, October 8, 1916, *Fernald, Butters & St. John*, no. 15,468 (TYPE in Gray Herb.) also October 14, 1916, *Fernald & Butters* in *Plantae Exsiccatae Grayanae*.

In the course of this study it has become apparent that *Erechtites hieracifolia* is a very polymorphous plant and that much tropical American material referred to it belongs clearly to some other species. In the eastern United States and Canada the plant although apparently all of one species is very variable, so much so that it is difficult to reconcile the ordinary descriptions with many of the specimens. Thus we find in standard descriptions that the upper leaves are, as described by Gray, "commonly with auriculate partly clasping base";[1] or by Small, "sessile and partly clasping."[2] Yet if we consult Rafinesque's original treatment of Erechtites we shall find that he had but one species, the type of the genus, *E. praealta*, accurately described, as abundant specimens show, "foliis alternis sessilibus basi attenuatis,"[3] and said to have "some similarity of habit, &c. with *Senecio hieracifolius* L."[3] It was not until twenty years later, and then by proxy,[4] that Rafinesque admitted the Linnean *Senecio hieracifolius* with auriculate-based partly clasping leaves to the genus *Erechtites*.

That the Linnean *Senecio hieracifolius* had auriculate-based clasping leaves is quite clear from the plate of Hermann's *Senecio Africanus* [corrected by Linnaeus to *americanus*] *altissimus Blattariae vel Hieracii folio*,[5] from which Linnaeus derived his specific name; and the

[1] Gray, Syn. Fl. i. pt. 2, 396 (1886).
[2] Small, Fl. S. E. U. S. 1300 (1903).
[3] Raf. Fl. Ludov, 65 (1817).
[4] *E. hieracifolia* (L.) Raf. in lit. in DC. Prodr. vi. 294 (1837).
[5] Herm. Par. ed. 2, 226, t. 226 (1705).

same character of the leaves is emphasized in the other citations given by Linnaeus, in which we find the significant phrase: "foliis amplexicaulibus." [1] These two plants, *Erechtites hieracifolia* (L.) Raf. and *E. praealta* Raf., are in their involucres and achenes clearly extremes of one species, but so different in foliage that they should be designated as forms or varieties.

True *E. hieracifolia* has the broad-based auriculate more or less clasping leaves scarcely decreasing in size into the inflorescence and is beautifully shown in Hermann's plate. The commonest variation of the species, at least as indicated by herbarium-representation, is neither the large-leaved typical form nor *E. praealta* but a plant with the upper leaves sessile and broad at base but very rapidly decreasing to small bracts below the inflorescence.

Although found through broad ranges these three rather pronounced variations do not seem to coincide in their distribution, at least in the Northeast. Typical *E. hieracifolia* is apparently common near the coast in southern New England, extending north along the larger valleys to central Maine, central New Hampshire, and the Champlain Valley, and west locally to Illinois. The intermediate variety, with broad-based but greatly reduced upper leaves, is apparently the commonest and most widespread, occurring from Texas to South Carolina and north to Ontario, Quebec and Prince Edward Island; while the plant with the upper leaves attenuate to base or even petioled, *E. praealta* Raf., described from Louisiana, extends eastward to Florida and north to Indiana, Ohio and southern Maine. As at present known the three plants seem to have somewhat different ranges and they are, therefore, here treated as geographic varieties.

To summarize, our species and varieties of *Erechtites* may be distinguished as follows:

Heads subcylindric, only slightly gibbous at base: bracts of the involucre linear, with a slender attenuated tip, 0.5–1.5 mm. broad at the scarcely dilated base: corolla of the perfect flower not brown-lineate; its tube pale straw-color: achenes 2–3 mm. long, not inflated, with 10–12 pale ribs and strigose brown furrows; the terminal annulus (formed by the bases of the pappus-bristles usually without a beak (the persistent style-base) protruding from the center: denuded receptacles 5–8.5 mm. in diameter.

1. *E. hieracifolia.*

Heads ovoid, abruptly acuminate, strongly gibbous at base (when fresh): bracts of involucre lanceolate, subobtuse, 1–3 mm. broad at the dilated

[1] L. Sp. Pl. ii. 866 (1753).

base: lobes of the corolla of the perfect flower with brown borders and midribs; the tube green; achenes 4–5.5 mm. long, inflated, with 16–20 ribs and glabrous or slightly strigose furrows; the annulus with a distinct beak protruding from the center: denuded receptacles 1–1.2 cm. in diameter. 2. *E. megalocarpa.*

1. E. HIERACIFOLIA (L.) Raf. in DC. Prodr. vi. 294 (1837).— Three varieties.

Upper leaves with broad sessile or somewhat clasping bases.
Leaves scarcely decreasing in size into the inflorescence. . . Var. *typica.*
Upper leaves rapidly reduced to bracts below the inflorescence. Var. *intermedia.*
Upper leaves attenuated to base or petioled. . . . . Var. *praealta.*

Var. **typica**. *Senecio hieracifolius* L. Sp. Pl. ii. 866 (1753).— Central Maine to Illinois, south to Connecticut, and presumably southward.

Var. **intermedia**, n. var. foliis caulinis gradatim minoribus, superioribus valde reductis vel bracteiformibus sessilibus basi latis.— Prince Edward Island to South Carolina, west to western Ontario, Kansas and Texas. TYPE: Cumberland, Rhode Island, September 13, 1903, *E. F. Williams* (Gray Herb.).

Var. **praealta** (Raf.), n. comb. *E. praealta* Raf. Fl. Ludov. 65 (1817).— Southern Maine to Florida, west to Indiana, southern Illinois and Louisiana.

2. E. MEGALOCARPA Fernald. See above.

GRAY HERBARIUM.

A VARIETY OF SPARTINA NEW TO NEW ENGLAND.— Recently in working over some grasses from the herbarium of William Boott, a collection long ago acquired by the Gray Herbarium, I found a specimen of *Spartina alterniflora* Lois. var. *glabra* (Muhl.) Fernald (RHODORA, xviii. 178) from Middlesex County, Massachusetts, collected presumably near Medford. It was labeled Medford Turnpike, September, 1852, in Boott's handwriting. As this variety seems not to have been previously reported north of Virginia this considerable extension of range seems worthy of record.— F. TRACY HUBBARD, Boston, Massachusetts.

NOTES ON RARE NEW YORK STATE PLANTS.

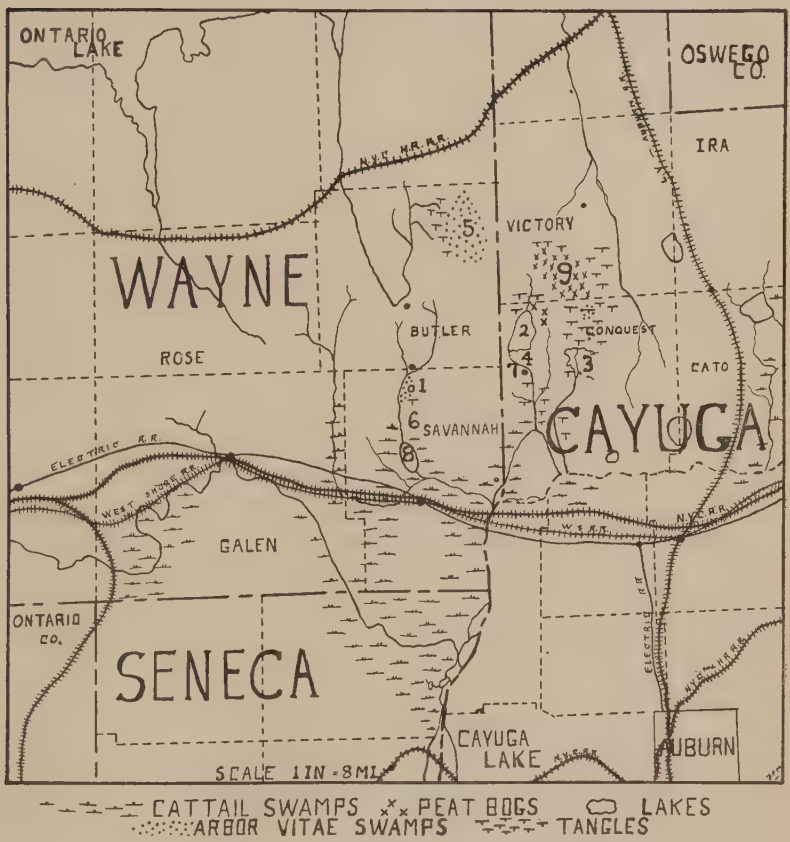
F. P. Metcalf and L. Griscom.

The territory covered by these notes lies partly in Wayne and partly in Cayuga County, New York, roughly speaking about twenty miles north of Lake Cayuga. This region geologically is a plain which extends from Fort Niagara on the west to Oswego on the east, reaching back to the foothills of the inland plateau south of Syracuse and Buffalo. At one time this was entirely covered by the old Lake Iroquois. It is a drumlin country. Chains of small lakes or ponds are everywhere in the hollows, surrounded by swamps or prairies; sphagnum bogs are frequent; and where the ground is a little higher an unusual type of low rich woods is found, affording a rich collecting ground to the botanist. Two types of country not found in the Cayuga Lake Basin (to the south) are the open peaty prairie and the arbor-vitae swamp.

This region has proved to be exceedingly rich botanically. We venture to say that there are few places in the State where twenty-five species of orchids can be found in a few square miles of country as the result of three trips in one summer. Indeed on August 12, 1916, the writers observed twenty species of this interesting group. Fortunately for the botanist, the lack of large towns, and cities, has served to preserve the native flora to a remarkable extent. It is interesting to note that as would naturally be expected from its given position and topographical characteristics, the flora of this region bears a much greater similarity to that of Rochester and Buffalo than to that of the Cayuga Lake Basin.

Quite by chance this region was first visited by Prof. A. H. Wright and the junior author in June, 1915. No plants were collected, but the richness of the flora was so evident that careful exploration was planned for the following year. Accordingly Prof. Wright, Mrs. Wright, and the authors collected there extensively from June 9–13, 1916, bringing back nearly one hundred sheets of rare plants. On this as tangible evidence of the interest of the region, Prof. Wiegand and several other members of the botanical department of the State College of Agriculture collected there from July 1–4, Prof. Wright and the senior author serving as guides; and Prof. Wright and the authors also collected from Aug. 11 to Aug. 14.

This paper, therefore, embodies primarily the striking results of these collections. For the sake of brevity, it has seemed best to treat each plant-association separately, rather than to give a narrative account, trip by trip. All plants mentioned are rare as compared with their occurrence in the Cayuga Lake Basin proper further south.



Map of Region described.

(1) Turtle Pond with Arbor Vitae Swamp — (2) Duck Lake, (3) Mud Pond, (4) Botrychium Woods N. of Spring Lake, (5) Westbury Prairie and Arbor Vitae Swamp, (6) Crusoe Prairie, (7) Miller's Bog, (8) Crusoe Lake, (9) Featherbed Bog.

Acknowledgments are due Prof. Wiegand for checking our identifications and for much assistance and advice in the preparation of this paper. To Prof. Wright of the Department of Zoölogy, our thanks are

warmly extended for the loan of rare local floras, invaluable cooperation in the field, and an enthusiasm which no circumstances or conditions could dampen.

The more interesting plant-associations are discussed in the following paragraphs, lack of time and study preventing a closer analysis. These association-types are so well known that it has seemed unnecessary to name the plants characteristic of each. Only the rarer ones are mentioned. At the end of the paper, detailed records are given for the rarer species, where the distribution of these throughout the state is recorded.

(1). Duck Lake. This is the only body of water of any size in the region. *Dianthera americana* and *Pontederia cordata* were growing on its banks in great abundance.

(2). Dry wooded hillsides. Characterized by several *Desmodiums*, *Lycopodium tristachyum* and *Habenaria Hookeri*. We were much surprised to find *Serapias Helleborine* at two stations. The plants were small and scraggly.

(3). Swamps, and adjacent springy places. The only noteworthy plant in the swamps themselves was *Potentilla palustris*, and it was very scarce. But the borders yielded a great deal more. *Samolus floribundus* was common, *Habenaria flava* and *H. laccra* were frequent. *Spiranthes lucida* and *Muhlenbergia racemosa* were occasional. *Juncus canadensis* var. *subcaudatus* and *Gerardia paupercula*, the distribution of which in the State is little understood, were found growing together in one station. *Carex Grayii* was found in just one locality. The rare *Juncus Torreyi* was found in one place only, but was very abundant, growing luxuriantly, and covering almost an acre of ground.

(4). Swampy woods. The flora in these woods was rather limited. The lowest ground which was under water almost all summer, supported a luxuriant growth of *Calla palustris* and *Saururus cernuus*. On hummocks, just above water, *Mitella nuda* was frequent, while *Liparis Loeselii* and *Habenaria fimbriata* were occasional. *Milium effusum* and the rare *Glyceria melicaria* were occasional in open places.

(5). Botrychium woods. These peculiar woods must be described separately. Lying a short distance northeast of Spring Lake, they are about a mile long and a quarter mile wide. The soil was deep black muck almost devoid of undergrowth. The trees, of which *Betula lutea* was the most noteworthy, grew so thick that the sun scarcely pene-

trated to the ground at any point. No less than five species of *Botrychium* were found here; the rare *B. simplex, B. ramosum, B. angustisegmentum, B. obliquum* var. *dissectum,* and *B. virginianum.* Except a few Lycopodiums, most of the undergrowth was composed of orchids. *Habenaria bracteata* was the least common; *Corallorrhiza maculata* was the most abundant. *Habenaria flava* was frequent. *Serapias Helleborine* was common, growing luxuriantly with large and highly colored flowers. The best find, however, was the dainty *Pogonia trianthophora.* Two patches were found, about four hundred plants in all, in each case growing under yellow birch. Nearly all the flowers oddly enough, were pure white.

(6). Arbor-vitae swamps. These swamps of which there are two in the region, had considerable sphagnum in them, but the flora was so different from the ordinary bog flora, that it must be treated separately. The most striking feature was the great abundance of *Cypripedium hirsutum.* Many thousands of these plants were in full bloom on July 3rd, 1916, making a sight never to be forgotten. *Eriophorum viridi-carinatum* was abundant. *Habenaria clavellata, Pyrola asarifolia var. incarnata,* and the rare *Valeriana uliginosa* were common; *Triglochin palustris* was common in one place only. *Chiogenes hispidula* and *Pogonia ophioglossoides* were frequent. A very little *Scirpus hudsonianus* and *Habenaria hyperborea* were collected. A few plants of the rare *Pogonia trianthophora* were found on hummocks under the arbor-vitae. At this station the flowers were pink.

(7). Sphagnum bogs. Besides the familiar bog heaths, several plants deserve mention. The borders were covered with a dense growth of *Cypripedium acaule* and *Smilacina trifolia.* White flowers of the former were by no means rare. *Habenaria clavellata* was abundant. *Bartonia virginica, Carex trisperma,* and *C. paupercula* var. *irrigua* were common. *H. blephariglottis* was frequent. Three plants of *Microstylis unifolia* were detected by Prof. Wright.

Out in the bogs proper the season witnessed an interesting succession of rare plants. In June *Eriophorum callitrix* filled all open places with occasional colonies of *Scheuchzeria palustris. Arethusa bulbosa* was found in one place only. Under the shade of the Vacciniums, *Pogonia verticillata* was common, though very few plants produced flowers. The best find, however, was *Listera australis,* which turned out to be common in two of the bogs. We had not even considered it as a possibility. The junior author, in proceeding from one open

place to another, was scrambling under a dense tangle of blueberry bushes, when a cluster of small brownish flowers appeared near his right foot. In this unscientific manner, the first plant was detected. Careful search on hands and knees revealed hundreds of scattered plants, but so inconspicuous is this species that many times the discoverer of some new plants would lose sight of them while waiting for the other members of the party to arrive. Even when he did not, the others would frequently have difficulty in finding them without assistance. It is unquestionably a difficult species to detect. The brownish flowers are just the color of the shadows, and the plant is usually buried in sphagnum up to the leaves. Our specimens varied from about 8 cm. to 3 dm. in height, the average height being about 1 dm. Occasional plants bore a third leaf.

Later in the season, *Pogonia ophioglossoides* and *Calopogon pulchellus* were in full bloom; *Woodwardia virginica* was common; and in August *Eriophorum virginicum* (both varieties) and *Rhynchospora alba* were nodding in all the open places.

(8). Miller's bog. This bog, just north of the Miller farm at Spring Lake, differed from all others in having no open sphagnum and being very much grown up. The flora itself was very distinct. *Potentilla fruticosa, Lonicera oblongifolia, Myrica cerifera* and *M. Gale.* were common shrubs. *Salix candida* was present in small quantities. *Lathyrus palustris* and var. *myrtifolius* were climbing everywhere. *Arenaria lateriflora* was common. *Cladium mariscoides* and the rare *Eleocharis rostellata* were found nowhere else. *Triglochin maritimum*, which is very rare inland in this State, was frequent.

(9). The Westbury prairie. This is a flat plain about one mile long by a quarter wide southwest of the town of Westbury, in Wayne Co. The soil was largely peat with about two inches of water; very little sphagnum was present. The chief growth was composed of sedges of various kinds, mainly *Carex filiformis.* In early July, the whole prairie was pink with *Calopogon* and *Pogonia,* a sight rivalling if not surpassing in beauty the appearance of these plants at the famous Mendon Ponds near Rochester. In August, *Aster junceus* was abundant, *Solidago uniligulata* and *Utricularia intermedia* were fairly common.

(10). Open meadow.— South of Butler along the edge of Crusoe Creek is a peculiar type of open meadow, which it is difficult to characterize. It was not so wet as the Westbury prairie, there was no sphagnum, and but little peat. In area it must have been several

square miles. Being well grown up with grasses and sedges, there was a curious jumble of plants, making it hard to define ecologically. *Parnassia caroliniana* was found here only. *Angelica atropurpurea* was common, and frequently reached a height of twelve feet. *Carex limosa*, *Triglochin palustris*, and *Hierochloë odorata*, the latter very rare in the interior of the State, were frequent. The great feature of this meadow, however, was the extreme abundance of the rare *Valeriana uliginosa*. Over several acres, the pure white corymbs of this plant was the characteristic vegetation. We have no hesitation in saying that there is enough *Valeriana* here to supply all the herbaria of the country. This rare plant in such abundance was indeed an inspiring sight.

The finding of so many rare species in so limited an area led the authors to investigate the status of these forms throughout the State. The bibliographical work necessary was largely undertaken by the senior author, as well as a careful examination of all local herbaria. Many stations are here published for the first time, including several omitted from territory covered by local floras. The writers were surprised to discover how few counties in the State have been explored at all thoroughly. The southwestern, and many of the northern counties still remain practically unknown botanically. The records given below are presented in the hope that they will stimulate interest in the flora of the State, and in the belief that a mere list of the rare plants from one restricted locality is of little general interest. The numerals after each record refer to the publications and herbaria consulted, a list of which is appended at the end of the paper.

Botrychium simplex E. Hitchcock. Herkimer Co.[1]: State Marsh near Jerusalem Hill, Litchfield (2). Lewis Co.: Fenton's Fourth Lake, *Mrs. Barnes* (8), vi. 352. Oneida Co.: pasture near Fall Brook, W. of Fish Creek (2). Otsego Co.: Unadilla Forks, *Brown* (3). Rensselaer Co.: *Dr. Waas* (1). Orange Co.: Highlands on Hudson, *Dr. Barrett* (1). Suffolk Co.: Riverhead, *Miller* (11), 1872, p. 89; Wading River, *Miller* (8), iv. 42. On Long Island, and up Hudson Valley to Dutchess Co. (17). Chenango Co.: Oxford, *Coville* (3). Tompkins Co.: Danby, 1882, *F. C. C. & W. R. Dudley* (9). Onondaga Co.: Otisco, *S. N. Cowles* (11), 1872, p. 108; Syracuse, rare (5). Oswego Co.: near Oswego, *A. Wibbe*, also *C. S. Sheldon* (11), 1879, p. 53. Cayuga Co.: woods N. of Spring Lake, Conquest, June 10, 1916, *F. P. Metcalf, L. Griscom* (10).

Botrychium angustisegmentum (Pease & Moore) Fernald. Essex

[1] The counties are arranged geographically, starting with the most northern and going south to New York and Long Island and then working northwestward.

Co.: Cascadeville, *C. H. Peck* (11), 1886, p. 75. Oneida Co.: Utica, *B. D. Gilbert* (8), xi. 76; sandy mounds in pasture 3 miles N. of Taberg (2). Fulton Co.: near Northampton and Northville, *C. H. Peck* (11), 1879, p. 85. Rensselaer Co.: Petersburgh, *C. H. Peck* (11), 1883, p. 40. Ulster Co.: Pine Hill, *C. H. Peck* (11), 1879, p. 54; Sam's Point, *N. L. Britton* (8), x. 106. Westchester Co.: Lake Mohegan, *Leggett* (11), 1870, p. 101. Rockland Co.: Palisades, *C. F. Austin* (7), 1906, p. 229. Westchester and Rockland Cos.: increasing and becoming common northward (17). Chenango Co.: rather common, *Coville* (8), xii. 53. Cortland Co.: near Truxton, 1893, *K. M. Wiegand* (9). Tioga Co.: Oakley Corners, Oswego, July, 1911, *H. M. Mapes* (10). Tompkins Co.: near Danby, 1883, *W. R. Dudley* (9). Cayuga Co.: woods S. E. of Featherbed Bog, Victory, June 11, 1916, *F. P. Metcalf, L. Griscom, A. A. & A. H. Wright;* woods N. of Spring Lake, Conquest, June 10, 1916, *A. A. & A. H. Wright, L. Griscom, F. P. Metcalf* (10). Orleans Co.: Holley, *W. H. Lennon* (4). Chautauqua Co.: Cassadaga Lake (6).

Botrychium ramosum (Roth.) Aschers. Essex Co.: Ray Brook (11), 1890, p. 84; near Cascade Lake (11), 1899, p. 156. Lewis Co.: *Mrs. Barnes, W. W. Hill* (11), 1878, p. 65. Oneida Co.: Deerfield, *E. Hunt* (11), 1875, p. 90; ravine near Utica, *J. A. Paine, E. Hunt* (8), iii. 33; Utica, *B. D. Gilbert* (8), xi. 76. Rensselaer Co.: Petersburgh (11), 1883, p. 40. Reported but not definitely known, Long Island, otherwise known only from northern Westchester Co., northward (17). Chenango Co.: common, *Coville* (8) xii. 53. Cortland Co.: Truxton (3 stations) 1892, *K. M. Wiegand* (21). Tioga Co.: Oakland Corners, Owego, July, 1911, *H. M. Mapes* (10); near North Spencer, June, 1915, *E. Dean* (10). Tompkins Co.; McLean, *Dudley* (11), 1883, p. 40; Malloryville, 1881, *W. R. Dudley* (9). Cayuga Co.: woods E. of Mud Pond, Conquest, June 6 and 7, 1916, *A. A. & A. H. Wright, L. Griscom, F. P. Metcalf* (10); woods N. E. of Featherbed Bog, Victory, June 11, 1916, *A. A. & A. H. Wright, L. Griscom, F. P. Metcalf* (10). Wayne Co.: reported in (4); woods near Turtle Pond, Savannah, June 12, 1916, *A. A. & A. H. Wright, L. Griscom, F. P. Metcalf* (10). Monroe Co.: Henrietta, *F. B. Fuller;* Webster, *M. S. Baxter* (4). Orleans Co.: Holley, *W. H. Lennon* (4).

Lycopodium tristachyum Pursh. Herkimer Co.: Grant, Ohio, Trenton and Grand View, *Haberer* (11), 1913, p. 37. Oneida Co.: Remsen, Hinckley, and Forestport, *Haberer* (11), 1913, p. 37; sandy oakwoods, near head of Oneida Lake, *Haberer & House* (11), 1913, p. 37. Throughout the range (17). Chemung Co.: wooded pastures, N. E. corner Van Etten, June 3, 1915, *A. J. Eames & L. H. MacDaniels* (10). Cortland Co.: Truxton, 1906, *K. M. Wiegand* (21). Cayuga Co.: woods on E. bank of Duck Lake, Conquest, June 10, 1916, *A. A. & A. H. Wright, L. Griscom, F. P. Metcalf,* and July 1, 1916, *A. J. Eames* (10).

Scheuchzeria palustris L. Franklin Co.: bog W. of Ampersand

Lake, 1899, *W. W. Rowlee, K. M. Wiegand, G. T. Hastings* (9). Herkimer Co.: Frankfort Hill (2). Oneida Co.: Summit Lake, Mud Lake, Hidden Lake, Swamps of Rome, Marshes of Point of Rock Lake, North Pond and North Woods, Wetmore's Pond, Bog near Oriskany (2). Rensselaer Co.: Cranberry Marsh, Sand Lake, *C. H. Peck* (11b), 1910, p. 72. Greene Co.: Tannersville (17). Dutchess Co.: Bingham Mt. (17). Broome Co.: Pond Brook, N. of Binghamton, *Clute* (3). Chenango Co.: MacDonough and Preston, *Coville* (3); Brisbin Swamp, 1887, *H. L. Stewart* (9). Onondaga Co.: Cicero Swamp, August 21, 1916, *K. M. Wiegand* (10). Oswego Co.: Granny's Orchard near Palermo, Bog at Williamstown, Bog near Long Bridge Pond, Paddy Lake near Scriba, 1891–95, *W. W. Rowlee* (9). Cayuga Co.: Featherbed Bog, Victory, June 11, 1916, *F. P. Metcalf, L. Griscom;* bogs north, N. E. and E. of Duck Lake, July 1, 1916, *F. P. Metcalf, L. H. MacDaniels* (10). Seneca Co.: Junius, *Sartwell* (12), also 1916 (10). Monroe Co.: Sphagnum Bogs, Mendon (4). Chautauqua Co.: Hanover (6).

Triglochin maritima L. Common along the coast of Long Island, New York City and Staten Island (17). Onondaga Co.: Salt Marshes, Salina, Onondaga Lake, *Cooper* (1), (5) and 1916, *K. M. Wiegand* (10). Oswego Co.: Mud Lake, Hannibal, 1894, *W. W. Rowlee* (9) and *H. D. House* (11), 1914, p. 48. Cayuga Co.: Miller's Bog near Spring Lake, Conquest, June 9, 1916, *L. Griscom, A. A. & A. H. Wright, F. P. Metcalf,* and June 30, 1916, *K. M. Wiegand, A. J. Eames* (10). Wayne Co.: reported in (4); abundant in arbor vitae-larch swamp and prairie, S. W. of Westbury, Butler, July 2, 1916, *K. M. Wiegand, A. H. Wright, F. P. Metcalf,* and August 12, 1916, *A. H. Wright, F. P. Metcalf, L. Griscom* (10).

Triglochin palustris L. Oneida Co.: Castle Swamp, *H. D. House* (11), 1913, p. 32. Madison Co.: Peeksport and Peterboro (11), 1913, p. 32. Shores of Long Island, (8), iii. p. 53. Onondaga Co.: marshes around Onondaga Lake, Salina and Liverpool, *Pursh* (1), and 1898, *G. T. Hastings* (9); marshy ground near Manlius Center, *C. H. Peck,* 1885, (5), also (11), 1880, p. 35; Green Lake, near Kirkville (11), 1913, p. 32. Seneca Co.: Junius, *Sartwell* (1), also 1883 (9), and 1916 (10). Wayne Co.: springy place N. of Crusoe Lake, Savannah, July 3, 1916, *A. J. Eames, F. P. Metcalf,* and along border of Crusoe Prairie, Savannah, October 5, 1916, *F. P. Metcalf, A. H. Wright* (10). Genesee Co.: West Bergen Swamp (2). Niagara Co.: Niagara; *Cooper* (1); Strawberry Island, Niagara River, *Clinton* (6). Erie Co.: near Buffalo, *Kinnicult* (1).

Hierocloë odorata (L.) Wahlenb. Kings Co.: vicinity of Erasmus Hall, *J. B. Zabriskie* (22a), 1835. On Long Island, Staten Island, and in the Bronx and Westchester Co., certainly known northward (17). Wayne Co.: *E. L. Hankenson* (4); Crusoe Prairie, N. of Crusoe Lake, Savannah, June 12, 1916, *F. P. Metcalf, L. Griscom, A. A. & A. H. Wright* (10). Monroe Co.: Sullivan's, *M. S. Baxter* (4b).

Glyceria melicaria (Michx.) Hubb. (*G. Torreyana* (Spreng.) Hitch.) Franklin Co.: Rustic Lodge, Saranac Lake, 1899, *W. W. Rowlee, K. M. Wiegand, G. T. Hastings* (9). Essex Co.: woods, swamps, Raybrook, North Elba (11a), 1899, p. 150. Oneida Co.: Valley of Mohawk, frequent (2); southern part of Co., common, *Gray* (2). Rensselaer Co.: Cranberry Marsh, Sand Lake, *C. H. Peck* (11b), 1910, p. 71. New York Co.: Tibbets' Brook, City Limits (8), vii. 114. Local in the Bronx, and on Long Island, increasing northward (17). Chenango Co.: McDonough 1884, *F. V. Coville* (21), Tioga Co.: swamp near Smithboro (3a). Cortland Co.: Thompson swamp, Truxton, 1896, *K. M. Wiegand* (9); Solon (1873) and Cuyler (1893), *K. M. Wiegand* (21). Cayuga Co.: West of Locke Pond, (?), *F. C. Curtice* (12); S. E. of Duck Lake, Conquest, June 11, and July 1, 1916, *F. P. Metcalf, L. Griscom* (10). Oswego Co.: S. W. of Williamstown, 1894, *W. W. Rowlee* (9); Fulton, 1889, *W. W. Rowlee* (9). Wayne Co.: S. of Turtle Pond, Savannah, June 12, 1916, *F. P. Metcalf, L. Griscom* (10). Monroe Co.: rare, *L. Holzer* (4). Erie Co.: reported in (6). Reported from the western part of the State, (2).

Eleocharis rostellata Torr. Westchester Co.: reported in (17). Queens Co.: Flushing and Springfield, *T. F. Allen* (11), 1866, p. 205. Long Island, not uncommon (17). Onondaga Co.: common (5). Cayuga Co.: Miller's Bog near Spring Lake, Conquest, June 10, 1916, *F. P. Metcalf, L. Griscom, A. A. & A. H. Wright* (10). Seneca Co.: West side Cayuga Marshes, about Indian Salt Springs, Seneca Falls (12); Junius, about Lowery's and Newton's Ponds (12). Yates Co.: Penn Yan, *Sartwell* (1). Monroe Co.: Sullivan's *M. S. Baxter* (4b). Genesee Co.: common in swamp W. Bergen (15).

Scirpus hudsonianus (Michx.) Fernald. Lewis Co.: *F. B. Hough* (22b), 1846; Cliffs of Black River, Leyden, 1912, *J. V. Haberer* (11), 1913, p. 38. Oneida Co.: Boonville, 1912, *J. V. Haberer* (11), 1913, p. 38; Oriskany Swamp, *Knieskern, Gray, Vasey* (2). Herkimer Co.: Hidden Lake, Litchfield; Mud Lake, *C. H. Peck* (2). Hamilton Co.: Elm Lake, *C. H. Peck* (11), 1913, p. 38. Warren Co.: Aiden Lair, *C. H. Peck* (11), 1913, p. 38. Madison Co.: Rippleton Swamp, 1894, *K. M. Wiegand* (21). Tompkins Co.: Round Marshes, 1879, *W. R. Dudley* (9), and 1916, *E. Dean, P. Munz.* Onondaga Co.: frequent (5). Oswego Co.: sphagnum swales beyond Rome, on both sides of county road (2); Mud Lake, Hannibal, 1895, *W. W. Rowlee* (9), and *H. D. House* (11), 1914, p. 48. Wayne Co.: *E. L. Hankenson* (4); Arbor Vitae swamp N. E. corner of Butler, July 3, 1916, *F. P. Metcalf, A. H. Wright* (10).

Carex Grayii Carey. Oneida Co.: meadows at Utica, 1834, *Dr. Gray* (2); above Utica, near Whitesboro (2); Oriskany, *Knieskern, Vasey* (2); Wood Creek, *T. Carey* (2). Greene Co.: New Baltimore, *Howe,* (11), 1869, p. 135. Westchester Co.: Hastings on Hudson, 1895, *Carrie Harrison* (9). Eastern New York, locally, *Fernald* (7),

iv. p. 229. Richmond Co.: reported in (17). New York Co.: reported in (17). Tioga Co.: Barton, *Fenno* (19). Cortland Co.: Truxton, 1894, *K. M. Wiegand* (21). Tompkins Co.: Renwick Park, Ithaca, 1896, *E. Carss* (9); Renwick Woods, Ithaca, July 21, 1916, *F. P. Metcalf* (10); Freeville, S. of Fir Tree swamp, 1882, *F. C. C. & W. R. Dudley* (12). Onondaga Co.: frequent (5); Minias, *Vasey* (9). Cayuga Co.: head of Owasco Lake, Moravia, 1879, *C. Atwood* (9). Wayne Co.: reported in (4), boggy ditch along roadside, W. of Howland's Island, Savannah, July 3, 1916, *K. M. Wiegand, F. P. Metcalf* (10). Monroe Co.: Valley of Genessee River (2); near Rochester, *C. Dewey, C. M. Booth, L. Holzer* (4). Wet places in central and western part of the State, rare in eastern part, *Peck & House* (13).

(*To be continued.*)

A GLANDULAR FORM OF HIERACIUM PANICULATUM L.— The writer has collected in Berkshire County, Massachusetts, several specimens of *Hieracium paniculatum* L. which have the branches of the inflorescence and even the upper part of the stem covered with stipitate glands. Britton and Brown in their Illustrated Flora, page 330 describe this species as "quite glabrous or somewhat glandular." An examination of the material in the New England Botanical Club collection and the Gray Herbarium shows that the glandular form is found more commonly on the Alleghany upland than off it. As the glandular form seems thus to have a certain geographic significance the writer suggests setting it off under the following name:

HIERACIUM PANICULATUM L., forma **glandulosum**, nov. form., pedicellis et caule superiore glandulis vestitis. Specimens of this form have been collected in the following localities: Camden, Maine (*M. L. Fernald*); Breezy Point, New Hampshire (*E. F. Williams*); Townshend, Vermont (*L. A. Wheeler*); Sandisfield, Stockbridge, and Great Barrington, Massachusetts (*R. Hoffmann*); Providence, Rhode Island (*J. F. Collins*); Black Mountain, Kentucky (*T. H. Kearney, Jr.*).

In specimens of this form the hairs characteristic of the base of the stem are found clothing the greater part of the main stem. In nearly all specimens of the typical smooth form the involucral scales at least show a glandular tendency, but in extreme forms even the involucre is perfectly glabrous.— RALPH HOFFMANN, Kansas City, Missouri.

Utricularia fibrosa in Massachusetts.—On 30 September, 1916, I discovered on the shore of a small pond in the southwestern part of Plymouth, growing among the rather dense culms of *Cladium* in shallow muddy water, a colony of a species of *Utricularia* which subsequent herbarium study has shown to be *U. fibrosa* Walt., a plant not before reported from north of Long Island. The broad upper lip is erect in flower, strongly nerved and fluted in the middle of the back. The lower lip is strongly descending, slightly three-lobed, and the slenderly conical spur is practically as long as the lower lip and subappressed to it. The prominent 2-lobed palate is slightly veined with brown, as is the spur; otherwise the flowers are of a clear yellow. The two sketches herewith presented, made from the fresh specimens in the field, will serve to give some idea of the appearance of this interesting addition to our flora.— S. F. Blake, Stoughton, Massachusetts.

Fig. 1.— *Utricularia fibrosa*, front and side views, about life size.

Some Traits of Epipactis in Vermont.—The writer finds some distinguishing characteristics in Epipactis which seem to be worthy of further study. When examined in living specimens, the sepals, both lateral and dorsal, of *E. pubescens*, as it comes into flower, are definitely tinged in the center with a green color. The sepals of *E. tesselata*, on the other hand, have an equally well defined tinge of rose color, while in *E. repens* var. *ophioides* they are pure white. If these color-differences observed in Vermont should prove constant when the plants in question are studied in other parts of their ranges, they will yield an easy means of distinguishing the species of this attractive but somewhat technical little group.

It is interesting to note that while *E. repens* loves the cedar swamp, it is also found in rich woods, but when in the woods, its leaf becomes a dark green, losing its well defined markings to such an extent that they are sometimes barely discernible.— H. W. Child, Boston, Massachusetts.

A New Luzula from eastern Canada.— Luzula campestris (L.) DC., var. **acadiensis**, n. var., caespitosa; culmis 1–4 dm. altis;

capitulis castaneis breviter ovoideis vel crasse cylindricis 4–8 mm. longis 4–6 mm. crassis, 2 vel 3 subsessilibus, reliquiis pedunculatis, pedunculis ad 2(–2.5) cm. longis; perianthiis 3–4 mm. longis capsulam valde superantibus.

Caespitose: culms 1–4 dm. high: heads castaneous, short-ovoid or thick-cylindric, 4–8 mm. long, 4–6 mm. thick, two or three of them subsessile, the others on ascending peduncles up to 2(–2.5) cm. long: perianth 3–4 mm. long, distinctly exceeding the capsule.— Prince Edward Island, New Brunswick and Nova Scotia. Prince Edward Island: dry border of woods, Charlottetown, June 30, 1914, *Fernald & St. John* in *Plantae Exsiccatae Grayanae*; recent clearing, west side of St. Peter's Bay, June 29, 1914, *Fernald & St. John*, no. 10,990 (type in Gray Herb.); sandy thicket, Morell, June 29, 1914, *Fernald & St. John*, no. 10,991. New Brunswick: Bay Verte, June 5, 1896, *E. M. Goodwin*. Nova Scotia: fresh or brackish swale, Grand Narrows, Cape Breton County, July 20, 1914, *Fernald & St. John*, no. 10,994.

Resembling var. *multiflora* (Ehrh.) Čelak, but that widely distributed plant has the capsules exceeding the shorter perianth (2.5–3.3 mm. long). In its long perianth and short capsule var. *acadiensis* is more closely related to the southern var. *echinata* (Small) Fernald & Wiegand[1] which occurs from Texas to Georgia and northward to eastern Massachusetts. The southern var. *echinata*, however, has much looser inflorescences, rarely with more than one of the heads sessile, the others on more spreading (often widely divergent) longer rays (up to 5.5 cm. long).— M. L. Fernald, Gray Herbarium.

Salvia sylvestris L. in County Peel, Ontario.— During the past summer Mr. A. Laidlaw, who is something of a botanist, noticed an unusual plant whilst cutting his alfalfa for hay. There was only one individual of it and it was growing on sandy loam in a high dry field. He gathered and pressed the specimen and when he showed it to me some time afterwards I was completely puzzled over it. I tried all the accessible floras but failed to place it. The specimen had four stems from a single root and I sent one of them to the Gray Herbarium, where it was referred to Mr. Harold St. John for identification. He informs me that it is *Salvia sylvestris* L., a native of eastern Europe and western Asia. Previous to the present finding, Mr. St. John tells me that

[1] Rhodora, xv. 42 (1913).

so far as he can learn it has been noticed but once in America, namely in Montgomery County, Pennsylvania. He also says that it is not mentioned from America in any publication so far as he has ascertained. As alfalfa seed is frequently imported into Canada from Europe, we can safely infer that this interesting plant has been casually introduced by impure seed.— JAMES WHITE, Snelgrove, Ontario, Canada.

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